

WHAT IS CLAIMED IS:

1. A motion picture analyzing system that analyzes a motion picture consisting of a group of still pictures photographed at a discrete time interval, comprising:

an addition image generation module that generates a first addition image and a second addition image, respectively including images of still pictures at different discrete time points with the images being added at different ratios, by sequentially timewise adding images of still pictures at individual discrete time points included in the motion picture to be analyzed; and

a motion detection module that detects a motion component in the motion picture to be analyzed, by comparing with each other said first addition image and said second addition image generated by said addition image generation module.

2. A motion picture analyzing system according to claim 1, wherein said addition image generation module includes a first memory and a second memory for respectively holding said first addition image and said second addition image, and said addition image generation module generates a new first addition image to be held in said first memory by adding a fetched input image and the present first addition image held in said first memory at a first ratio, while generating a new second addition image to be held in said second memory by adding said fetched input image and the present second addition image held in said second memory at a second ratio different from said first ratio.

3. A motion picture analyzing system according to claim 1, wherein said motion detection module includes a comparator that outputs a motion component by

comparing with each other, corresponding pixels of said first addition image and said second addition image.

4. A motion picture analyzing system according to claim 3, further comprising:

a first matrix development module that takes out a first pixel group located in a predetermined area, from said first addition image generated by said addition image generation module; and

a second matrix development module that takes out a second pixel group located in an area corresponding to said predetermined area, from said second addition image generated by said addition image generation module;

wherein said comparator in said motion detection module compares said first pixel group taken out by said first matrix development module with said second pixel group taken out by said second matrix development module, to output a motion component.

5. A motion picture analyzing system according to claim 3, wherein said motion detection module includes a counter that counts motion components outputted by said comparator, to calculate a motion quantity in the motion picture to be analyzed.

6. A motion picture analyzing system according to claim 4, further comprising: a movement direction detection module that detects a movement direction in the motion picture to be analyzed, by comparing said first pixel group taken out by said first matrix development module with said second pixel group taken out by said second matrix development module, while spatially shifting these groups.

7. A motion picture analyzing system according to claim 6, wherein said movement direction detection

module includes:

a motion component output comparator that outputs a motion component by comparing a first reference pixel included in said first pixel group with a second reference pixel included in said second pixel group;

a plurality of direction component output comparators that output direction components corresponding to at least four directions, by respectively comparing a plurality of pixels in said first pixel group, located at a position shifted in said respective directions from said first reference pixel, with said second reference pixel in said second pixel group; and

a plurality of mask units that output movement direction components corresponding to said respective directions, by selectively outputting motion components outputted by said motion component output comparator, in accordance with the direction components corresponding to said respective directions outputted by said respective direction component output comparators.

8. A motion picture analyzing system according to claim 7, wherein said respective mask units output said motion component when the direction components corresponding to said respective directions are larger than a predetermined threshold.

9. A motion picture analyzing system according to claim 7, wherein said respective mask units output said motion component when the direction components corresponding to said respective directions and direction components in a certain relationship therewith are in an exclusive relationship.

10. A motion picture analyzing system according to claim 7, wherein said movement direction detection

module further includes a counter that counts respective movement direction components outputted by said respective mask units to calculate a movement direction quantity corresponding to said respective directions.

11. A motion picture analyzing system that analyzes a motion picture consisting of a group of still pictures photographed at a discrete time interval, comprising:

an addition image generation module that generates a first addition image and a second addition image, respectively including images of still pictures at different discrete time points with the images being added at different ratios, by sequentially timewise adding images of still pictures at individual discrete time points included in the motion picture to be analyzed;

a first matrix development module that takes out a first pixel group located in a predetermined area, from said first addition image generated by said addition image generation module;

a second matrix development module that takes out a second pixel group located in an area corresponding to said predetermined area, from said second addition image generated by said addition image generation module; and

a movement direction detection module that detects a movement direction in the motion picture to be analyzed, by comparing said first pixel group taken out by said first matrix development module with said second pixel group taken out by said second matrix development module, while spatially shifting these groups.

12. A motion picture analyzing system according to claim 11, wherein said addition image generation module includes a first memory and a second memory for respectively holding said first addition image and said

second addition image, and said addition image generation module generates a new first addition image to be held in said first memory by adding a fetched input image and the present first addition image held in said first memory at a first ratio, while generating a new second addition image to be held in said second memory by adding said fetched input image and the present second addition image held in said second memory at a second ratio different from said first ratio.

13. A motion picture analyzing system according to claim 11, wherein said movement direction detection module includes:

- a motion component output comparator that outputs a motion component by comparing a first reference pixel included in said first pixel group with a second reference pixel included in said second pixel group;

- a plurality of direction component output comparators that output direction components corresponding to at least four directions, by respectively comparing a plurality of pixels in said first pixel group, located at a position shifted in said respective directions from said first reference pixel, with said second reference pixel in said second pixel group; and

- a plurality of mask units that output movement direction components corresponding to said respective directions, by selectively outputting motion components outputted by said motion component output comparator, in accordance with the direction components corresponding to said respective directions outputted by said respective direction component output comparators.

14. A motion picture analyzing system according to claim 13, wherein said respective mask units output said motion component when the direction components

corresponding to said respective directions are larger than a predetermined threshold.

15. A motion picture analyzing system according to claim 13, wherein said respective mask units output said motion component when the direction components corresponding to said respective directions and direction components in a certain relationship therewith are in an exclusive relationship.

16. A motion picture analyzing system according claim 13, wherein said movement direction detection module further includes a counter that counts respective movement direction components outputted by said respective mask units to calculate a movement direction quantity corresponding to said respective directions.

17. A motion picture analyzing method for analyzing a motion picture consisting of a group of still pictures photographed at a discrete time interval, comprising:

a step of generating a first addition image and a second addition image, respectively including images of still pictures at different discrete time points with the images being added at different ratios, by sequentially timewise adding images of still pictures at individual discrete time points included in the motion picture to be analyzed; and

a step of detecting a motion component in the motion picture to be analyzed, by comparing with each other said generated first addition image and said generated second addition image.

18. A motion picture analyzing method according to claim 17, further comprising:

a step of taking out a first pixel group located in

a predetermined area from said generated first addition image and taking out a second pixel group located in an area corresponding to said predetermined area from said second addition image; and

a step of detecting a movement direction in the motion picture to be analyzed, by comparing said taken out first pixel group and said taken out second pixel group, while spatially shifting these groups.

19. A motion picture analyzing program for analyzing a motion picture consisting of a group of still pictures photographed at a discrete time interval, which causes a computer to execute:

a procedure of generating a first addition image and a second addition image, respectively including images of still pictures at different discrete time points with the images being added at different ratios, by sequentially timewise adding images of still pictures at individual discrete time points included in the motion picture to be analyzed; and

a procedure of detecting a motion component in the motion picture to be analyzed, by comparing said generated first addition image and said generated second addition image.

20. A motion picture analyzing program according to claim 19, which further causes the computer to execute:

a procedure of taking out a first pixel group located in a predetermined area from said generated first addition image and taking out a second pixel group located in an area corresponding to said predetermined area from said second addition image; and

a procedure of detecting a movement direction in the motion picture to be analyzed, by comparing said taken out first pixel group and said taken out second

pixel group, while spatially shifting these groups.